PATENT



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Uttam Ghoshal

Title: THERMOELECTRIC DEVICES

Application No.: 10/756,603 Filed: January 13, 2004

Examiner: Alan D. Diamond Group Art Unit: 1753

Atty. Docket No.: 089-0005 Confirmation No.: 1623

February 1, 2005

Mail Stop Amendment COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, VA 22313-1450

## INFORMATION DISCLOSURE STATEMENT 37 C.F.R. § 1.97(b)

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the undersigned brings to the Examiner's attention in the above-identified application the patents, publications, applications or other information identified in the attached:

$\boxtimes$	Form(s) PTO/SB/08A (3 page(s), with copy of 1 reference(s)).
$\boxtimes$	Form(s) PTO/SB/08B (1 page(s), with copy of 7 reference(s)).
	Listing of Pending Applications (N/A page(s), with copy of no application(s))
	Other: N/A

Citation of such information shall not be construed as (i) an admission that the information necessarily is, or corresponds to, prior art with respect to the instant invention, (ii) a representation that a search has been made, other than as described herein, or (iii) an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

For each item of information listed that is not in the English language, the undersigned has provided a concise explanation of the relevance through (i) an English language abstract, (ii) an English language equivalent application, or (iii) if cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action that indicates the degree of relevance found by the foreign office.

## **CERTAIN COPIES NOT INCLUDED**

Pursuant to operative regulations, certain copies need not be provided and corresponding information is identified in this Information Disclosure Statement by citation only. In particular,

$\boxtimes$	In accordance with 37 C.F.R. § 1.98(a Application Publications are not include	)(2)(ii), copies of cited U.S. Patents and U.S. Patent ded.
	filed N/A, to which the above-identified	or cited by, the Office in Application No(s). N/A, ed application claims priority under 35 U.S.C. § 1.98(d), copies of that information are not
	applications filed (or which entered th	e, 2004), for those cited pending U.S. patent e national stage under 35 U.S.C. § 371) on or after stored in the USPTO's Image File Wrapper system,
	FEE AUT	THORIZATION
$\boxtimes$	national application other than a contin	at is filed within three months of the filing date of a nued prosecution application under § 1.53(d) or tional stage as set forth in § 1.491 in an no fee is required.
	the mailing date of a first Office action	ormation Disclosure Statement is being filed before in on the merits or before the mailing date of a first test for continued examination under § 1.114.
CER'	TIFICATE OF MAILING OR TRANSMISSION	Respectfully submitted,
	ertify that, on the date shown below, this dence is being	
depos	sited with the US Postal Service with sufficient postage	hlar
as fire	st class mail, in an envelope addressed to Commissioner stents, P.Ø. Box 1450, Alexandria, VA 22313-1450.	David W. O'Brien, Reg. No. 40,107
□ fa¢sir	nile transmitted to the US Patent and Trademark Office.	Attorney for Applicant(s)
1/2	15/2	(512) 338-6314 (512) 338-6301 (fax)
	David W. O'Brien Date	(312) 330-0301 (lax)

EXPRESS MAIL LABEL:

Attorney Docket No.:	089-0005
Application No.:	10/756,603
First Named Inventor	: Uttam Ghoshal
Filing Date:	January 13, 2004
Group Art Unit:	1753
Examiner Name:	Alan D. Diamond
Date Submitted:	February 1, 2005
	First Named Inventor Filing Date: Group Art Unit: Examiner Name:

	WY &	TRADEMARK	U.S. PATENT DO	CUMENTS		
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passage Relevant Figures Appe	s or
		US-4,688,147	08-18-1987	Ono		
		US-5,184,211	02-02-1993	Fox		
		US-5,640,046	06-17-1997	Suzuki et al.		
		US-5,867,990	02-09-1999	Ghoshal		
		US-5,943,211	04-24-1999	Havey		
		US-6,000,225	12-14-1999	Ghoshal		
		US-6,021,844	02-08-2000	Batchelder		
		US-6,065,293	05-23-2000	Ghoshal		
		US-6,105,381	08-22-2000	Ghoshal		
		US-6,119,463	09-19-2000	Bell		
		US-6,161,388	12-19-2000	Ghoshal		
		US-6,175,495	01-16-2001	Batchelder		
		US-6,222,113	04-24-2001	Ghoshal		
		US-6,223,539	05-01-2001	Bell		
		US-6,256,996	07-10-2001	Ghoshal		
•	J	F	OREIGN PATENT I	DOCUMENTS		
Examiner Initials*	Cite No.1	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T'
		JP360004244A	01-10-1985	Ashiwake et al.		
Examiner Sig	nature			Date Considered		

<sup>\*</sup>EMAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional).

See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04.

Enter Office that issued the document, by the two-letter code (WIFO Standard ST.3).

For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the cerial number of the patent document.

Kind of document by the appropriate symbols as indicated on the document under WIFO Standard ST.16 if possible.

Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14.

PTO/SB/08A (Substitute for form 1449/PTO)	Attorney Docket No.:	089-0005
	Application No.:	10/756,603
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	First Named Inventor	: Uttam Ghoshal
(Continuation Sheet)	Filing Date:	January 13, 2004
	Group Art Unit:	1753
	Examiner Name:	Alan D. Diamond
Sheet 2 of 3	Date Submitted:	February 1, 2005

			U.S. PATENT DO	CUMENTS			
Examiner Initials*	Cite No.1	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or A		Pages, Columns, Line Where Relevant Passage Relevant Figures Appe	s or
		US-6,266,962	07-31-2001	Ghoshal			
		US-6,282,907	09-04-2001	Ghoshal			
		US-6,300,150	10-09-2001	Venkatasubramanian			
		US-6,338,251	01-15-2002	Ghoshal			
		US-6,384,312	05-07-2002	Ghoshal			
		US-6,388,185	05-14-2002	Fleurial et al.			
-		US-6,474,074	05-30-2002	Ghoshal			
		US-6,452,740	09-17-2002	Ghoshal			
		US-6,494,048	12-17-2002	Ghoshal et al.			
		US-2003/0005706 A1	01-09-2003	Bell			
		US-6,505,468	01-14-2003	Venkatasubramanian			
		US-2003/0079770 A1	05-01-2003	Bell			
		US-6,588,217	07-08-2003	Ghoshal			
		US-6,597,544	07-22-2003	Ghoshal		•	
		US-6,598,403	07-29-2003	Ghoshal			
		US-6,598,405	07-29-2003	Bell		·	
	<u>.                                    </u>	F	OREIGN PATENT	DOCUMENTS	<u>_</u>		
Examiner Initials*			Publication Date MM-DD-YYY	Name of Patentee of Cited Docu		Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T
Examiner Sig	gnature		1	Date Considered		1	<u> </u>

PTO/SB/08A (Substitute for form 1449/PTO)	Attorney Docket No.:	089-0005
	Application No.:	10/756,603
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	First Named Inventor	: Uttam Ghoshal
(Continuation Sheet)	Filing Date:	January 13, 2004
	Group Art Unit:	1753
	Examiner Name:	Alan D. Diamond
Sheet 3 of 3	Date Submitted:	February 1, 2005

## **U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No.1	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-6,606,866	08-19-2003	Bell	
		US-6,608,250	08-19-2003	Ghoshal	
		US-6,613,602	09-02-2003	Cooper et al.	
		US-6,614,109	09-02-2003	Cordes et al.	
		US-6,625,990	09-30-2003	Bell	
		US-6,637,210 B2	10-28-2003	Bell	
		US-6,658,861	12-09-2003	Ghoshal et al.	
		US-6,672,076	01-06-2004	Bell	
		US-2004/0020217 A1	02-05-2004	Bell	
		US-2004/0031514 A1	02-19-2004	Bell	
		US-6,700,052 B2	03-02-2004	Bell	
		US-6,708,501	03-23-2004	Ghoshal et al.	
		US-6,712,258	03-30-2004	Ghoshal	
		US-6,722,140	04-20-2004	Venkatasubramanian	
		US-6,740,600	05-25-2004	Ghoshal et al.	
		F	OREIGN PATENT I	DOCUMENTS	
Examiner Initials*	Cite No.1	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYY	Name of Patentee or Applican of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear
Examiner Sig	nature		A	Date Considered	<u> </u>

PTO/SB/08B (Substitute for form 1449/PTO)  Application No.: 089-0005  Application No.: 10/756,603  INFORMATION DISCLOSURE STATEMENT BY APPLICANT  First Named Inventor: Uttam Ghoshe  (Use several sheets if necessary)  Filing Date: January 13, 20  Group Art Unit: 1753  Examiner Name: Alan D. Diam  Date Submitted: February 1, 20  NON PATENT LITERATURE DOCUMENTS  Examiner Initial*  No.1  (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.  D.M. ROWE (ed.), CRC Handbook of Thermoelectrics, CRC Press (New York), 1995, pp. 479-488.	ond
INFORMATION DISCLOSURE STATEMENT BY APPLICANT  (Use several sheets if necessary)  Filing Date:  Group Art Unit:  1753  Examiner Name:  Alan D. Diam  Date Submitted:  February 1, 2  NON PATENT LITERATURE DOCUMENTS  Examiner  Initial*  No.¹  (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	004 ond 005
Cite Initial*    Compared to the item   Compared to the item	004 ond 005
Cite Initial*  Examiner Name: Alan D. Diam  Date Submitted: February 1, 2  NON PATENT LITERATURE DOCUMENTS  Examiner Initial*  No. 1  (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	ond 205
Examiner Name: Alan D. Diam.  Date Submitted: February 1, 20  NON PATENT LITERATURE DOCUMENTS  Examiner Initial*  No. 1 (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	005
NON PATENT LITERATURE DOCUMENTS  Examiner Initial*  Cite RAD Culde name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	005
NON PATENT LITERATURE DOCUMENTS  Examiner Initial*  No.   Date Submitted: February 1, 20  NON PATENT LITERATURE DOCUMENTS  Cite   RAD   Cite   RAD   Cite   Capital   Capital	· · · · · ·
Examiner Initial* Cite Marclude name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item No. 1 (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
Examiner Initial* Cite Marclude name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item No. 1 (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
D.M. ROWE (ed.), CRC Handbook of Thermoelectrics, CRC Press (New York), 1995, pp. 479-488.	
V. ZAKORDONETS and G. LOGINOV, "Thermoelectric figure of merit of monopolar semiconductors with finite dimensions," <i>Semiconductors</i> , vol. 31, pp. 265-267, March 1997.	
B. K. RIDLEY, <i>Electrons and Phonons in Semiconductor Multi-layers</i> , Cambridge University Press (New York), 1997, Ch. 11.7.	
A. BEJAN (ed.), Advanced Engineering Thermodynamics, 2nd Edition, John Wiley & Sons, Inc. (New York) 1997, pp. 675-682.	
M. BARTKOWIAK and G. MAHAN, "Boundary Effects in Thin Film Thermoelectrics," Materials Research Society Symposium Proceedings, vol. 545, p. 265-273, 1999.	
Tellurex Corporation, "Frequently Asked Questions," http://www.tellurex.com, © 2002, printed Dec. 1, 2004.	
Tellurex Corporation, "Frequently Asked Questions about Thermoelectric Power Generation," <a href="http://www.tellurex.com">http://www.tellurex.com</a> , © 2003, printed Dec. 1, 2004.	
Examiner Signature Date Considered	

<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional).

Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14.